2008

Adaptive Harvest Management Working Group Annual Meeting Summary

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Annual Meeting Summary
December 2-4, 2008
Buda, TX

Session 1: Setting the Stage

Mark Koneff and Dave Case opened the meeting and introductions were made. The agenda for the meeting can be found in the attachment to this summary.

For several years, Flyway Technical Committees and Councils have expressed some concern over the direction of the waterfowl harvest regulation setting process. Many of the issues that have been raised are fundamentally of a policy nature. The intent of the first session was to provide an opportunity for the state Flyway representatives to summarize the perspectives of their Flyways with respect to current approaches to regulations setting. The Working Group would then explore common themes among the Flyway comments. Being privy in advance to some of the concerns raised by the Flyways, U.S. Fish and Wildlife Service (FWS) Division of Migratory Bird Management (DMBM) and U.S. Geological Survey (USGS) Biological Resources Discipline (BRD) personnel coordinating the Working Group meeting attempted to identify overarching issues related to known Flyway concerns and established agenda topics in session 2 and 3 that were designed to address these. It was hoped by working through these overarching issues and describing a set of technical tools to assist in evaluating implications and assessing tradeoffs that the Working Group could then develop and lead a systematic effort to assist policy makers in addressing outstanding policy concerns identified by the Flyways.

Atlantic Flyway (Min Huang, CT, and Bryan Swift, NY)—

Regulatory packages - We have asked the USFWS to propose a process and timeline by June 2009 for review and modification of duck hunting regulatory alternatives for implementation by the 2011 season. We have on numerous occasions since 2000 requested an opportunity to modify the regulatory alternatives available to the AF, but have not received guidance on when or how that might be allowed. We would like the opportunity to revise our basic regulatory alternatives, to accomplish several things: reduce the total duck bag to 4 or 5; have the total bag limit = the mallard bag limit; eliminate the hen mallard restriction in the Liberal package; and potentially reduce season length by 5-10 days, especially if that would help eliminate the need for any partial seasons within a season for any species. The underlying reasons/objectives for these changes include: simpler regulations and allowing populations to grow, even under Liberal regulations, by taking less than MSY (i.e., putting a right-shoulder philosophy into practice).

Species-specific regulations - The current set of species-specific bag limits is overly complex. Some restrictions seem unnecessary, and others might be more acceptable if they were not subject to annual review and adjustment, resulting in uncertainty and too frequent changes that hunters must try to comply with. Reducing the total bag limit and having it equal to the mallard bag may not reduce the need for species-specific regulations, however, in many areas of the AF, ancillary harvest of other species will not occur with the frequency it does now. AHM in many regards has served well for mallards, but it's unclear whether it can be successfully applied to other species (due to data limitations). We haven't learned much about the various regulatory packages and their impact on harvest rates.

Use of Models for Harvest Management - At the present time, harvest strategies for ducks vary widely in format and approach. This is hard to understand and explain. Moreover, most rely on population/harvest models that prescribe annual regulations, but they have not always performed well at predicting population change. The models might be more useful to evaluate and prescribe stable regulations for a longer period of time (e.g., 5 years), reducing uncertainty and allowing longer-term assessment of regulations.

Management Objectives - We would like to re-visit the whole issue of objective setting, and just exactly what we are trying to achieve with our harvest management. The debate over objectives must occur, particularly if we are to move forward with integration and coherence.

Mississippi Flyway (Guy Zenner, IA, and Larry Reynolds, LA)—

Simplifying Hunting Regulations - Historically, the Mississippi Flyway has not always advocated simple waterfowl hunting regulations (e.g., see the point system that was used in the 1970's and 1980's). The assumption was that increased regulation complexity would result in greater hunting opportunity and/or better (more precise?) harvest/population management. In recent years, however, the Flyway has been advocating simpler waterfowl hunting regulations that better balances the costs and benefits of regulation complexity. We recognize that the majority of duck hunters have only rudimentary duck identification skills and simpler hunting regulations might encourage, or at least not discourage, participation in waterfowl hunting. Maintaining participation in waterfowl hunting is an important objective for the Flyway. Complex hunting regulations (e.g., seasons within seasons, changes in bag limits during seasons, etc.) imply to the hunting public that we (the regulators) have precise control over duck harvests and populations, whereas, in reality, we have only crude control over harvests and populations. Simplified hunting regulations recognize that we have limited control over harvests and that other factors can, and do, influence duck harvests. Partial or closed seasons simply make it more difficult for well-meaning, law-abiding hunters to comply with hunting regulations, which is one of the main reasons states have opposed proposals for partial and closed seasons.

Review of Regulatory Packages - For several years, the Mississippi Flyway has been asking the Service for a review of the regulatory packages. This request is tied to the desire to simplify regulations and to reduce hunting pressure on some non-mallard ducks. Most states in the Flyway believe that the majority of hunters would be satisfied with an overall bag limit that was the same as the mallard bag limit, assuming the reduction in bag limit would reduce hunting pressure on non-mallard ducks of concern and would result in fewer partial or closed seasons. We believe this because when hunters were asked in the National Duck Hunter Survey how many ducks they needed to harvest in a day's hunt to be satisfied, 72% of the Mississippi Flyway hunters said 4 or fewer. (Had the daily bag limit at the time of the survey been 4 instead of 6, the proportion favoring 4 would very likely have been higher.) Before any additional individual species harvest strategies are developed, we feel the overall duck bag limit in the liberal and moderate regulatory packages should be reviewed. We do not feel that the discussion on this issue should wait until the EIS on migratory bird hunting is completed as that may not occur for several more years. In the meantime, we may find ourselves having to develop more harvest strategies for non-mallard ducks that will further complicate regulations.

Lack of Coherence Among Duck Harvest Strategies - The Mississippi Flyway is concerned about the lack of coherence and consistency among the various harvest strategies that have been developed to guide hunting regulations in the last 15 years. There are currently eight duck harvest strategies (mid-continent mallards, western mallards, eastern mallards, black duck, northern pintail, scaup, canvasback, and wood duck) that have been implemented or are near final development. These strategies have focused on single species (or stocks of a single species), but, in many cases, they also have implications for harvests and hunting opportunities for other species (or stocks of a single species). The Western Mallard Adaptive Harvest Management Strategy (AHM) is an example of a single species stock-specific plan that has harvest management implications for other species or breeding stock(s) that are not adequately addressed in the harvest strategy. We also have concerns that we may be stretching the data we have for some species beyond its limits and that the imprecision of our inputs in these harvest strategies is not adequately reflected in model outputs, which again leads to the false impression that we have precise control over harvests and the subsequent duck populations. This sends a message to the public that biologists can control the rise and fall of duck populations by manipulating harvest regulations, whereas many biologists would argue that harvest, in most cases, is not the primary driving force for most duck

populations. We need to recognize the limits of our modeling capabilities, where those limits constrain model-based management decisions, and rely at least as much on our joint historical expertise, which has served us well for most of the past 50 years.

Harvest Objectives - With respect to harvest objectives, we feel we should revisit this issue so we can thoroughly discuss whether to use harvest-based (i.e., yield) objectives versus other types of objectives (e.g., hunter satisfaction, maintaining higher BPOPs, producing larger fall flights, etc.). We feel we should have this discussion before we decide to use a specific point on a yield curve, which essentially is an endorsement of the current approach, i.e., measuring success by the size of harvest that can be achieved over the long-term. Maximizing long-term yields may not equate to hunter satisfaction, which we feel is a substantial part of the real objective to maintain hunting opportunity (along with maintaining duck populations). Of course, if we select a point on the right side of the yield curve, we will not be maximizing the potential harvest. But we will still be using dead ducks as our measure of success. Would using the fall flight as an objective equate to broader harvest opportunities and greater hunter participation and satisfaction? Various objectives were discussed when AHM was first being developed. After 15 years, it may once again be time to discuss this important aspect of our harvest strategy as it not only impacts mallards but all ducks.

Constraining the Use of the Regulatory Packages for Mid-continent Mallards - The current AHM harvest strategy for mid-continent mallards is extremely knife-edged. Even a small change in pond or mallard numbers could result in the season being reduced from 60 to 30 days in the Mississippi Flyway. When this occurs it will be challenging to explain to hunters why we would reduce the season from 60 to 30 days without using the moderate (45-day) regulations package. We are unsure how hunters will react to cutting the season in half in the Mississippi Flyway, but some states believe that such a change may result in severe criticism of the waterfowl management community. As waterfowl managers, we recognize that the form of the current harvest strategy is due in part to the small differences in harvest rates associated with the liberal, moderate, and restrictive regulatory packages. However, we doubt that that explanation will satisfy hunters who will likely conclude that the change in season length from 60 to 30 days is just another example of our inability to effectively manage duck populations. There may be important social and political reasons to modify the current policy so that we do not jump from 60 to 30 day seasons in successive years. Such a change may be suboptimal in regards to maximizing the long-term harvest but it may be optimal for maintaining support for the AHM process and science-based management. It has been suggested that eliminating the moderate package might also solve this issue as hunters would then know that there were only 2 possible seasons, a liberal and restrictive season. We feel we should address this issue in the near future because there is a high probability that the Central and Mississippi Flyways will see reductions in season lengths while the Atlantic and Pacific Flyways maintain liberal seasons. This will further complicate public relations. We believe that the potential social and political reactions should be factored into the optimal regulatory selection process.

Perceptions of the Future of Waterfowl Management Workshop - In general, the MF supports working toward a more holistic approach that better integrates management of waterfowl populations, wetland habitats, and people. However, the topics originally proposed for discussion at this AHM Working Group meeting seemed to assume that the Flyways already supported the use of a shoulder strategy to establish coherence between habitat and harvest management. Our perception of the outcome of the Waterfowl Management Workshop is that there are still a fair number of people in the waterfowl management community that question the need for coherence between harvest and habitat management as envisioned via use of yield curves. A considerable amount of additional work will be needed to try to achieve coherence between harvest and habitat management programs and we feel that such an endeavor should be backed by an overwhelming majority of participants or the results stand a good chance of being rejected.

Simplifying the Regulations Process - Although the regulations process of the 1960's, 1970's and 1980's would never be described as simple or harmonious, neither would the regulations process of the past 15 years. As more complex harvest strategies have been developed for multiple species and multiple stocks of single

species, the regulations process seems to have grown in length and complexity. The length and complexity of the process implies that waterfowl managers can and must precisely control harvest, when in reality, we cannot precisely control harvest and do not necessarily have to because harvest is not the primary driving force in waterfowl population dynamics. We may be better served to establish regulations that are somewhat conservative, i.e., that won't necessarily result in maximum harvest over the long-term, and use the resources that we currently pour into this process to address other waterfowl management issues and questions.

Central Flyway (Mark Vrtiska, NE, and Mike Johnson, ND)—

Since 1992, representatives from the Central Flyway (CF) have been a part of the Adaptive Harvest Management (AHM) Working Group. At most/many of these meetings, the Flyways were asked to provide a summary of their current thoughts, issues and concerns regarding AHM and duck harvest management that were of concern to the Flyways. The CF has always reported support or at least "cautious optimism" for continuing the AHM process.

While we continue our support for AHM for mid-continent mallards, the CF is very concerned about the current direction of duck harvest management. Furthermore, we are also concerned about ***duck hunter*** management and the future of waterfowl hunting traditions. We believe we are at a major crossroads in the history of waterfowl harvest management, and we are beginning to question whether the directions of duck harvest and duck hunter management are on the same or different paths.

In regards to duck harvest management, the Central Flyway Council (CFC) expressed it concerns in its Recommendation 15: Proliferation of Model Based Duck Harvest Strategies (Phoenix, AZ, March 25, 2008). This recommendation asked the Service to "*refrain from implementing any new duck management strategies until the flyways and the Service have cooperatively developed appropriate criteria and guidelines for their development and implementation*."

The CFC's concern centered on the proliferation in the number, as well as the integration (or lack thereof) of new duck harvest strategies. Multiple harvest strategies may create cumulative inter-related impacts to duck harvest management that are not readily addressed in any single harvest management strategy. The separation of additional species/stocks from the overall duck season or bag limits typically results in numerous, additional duck hunting regulations. We believe that the current path will lead to a number of species-specific seasons that we hope we can fit back together into something hunters recognize as a duck season?

We further speculate whether new species modeling approaches may also overstep the capabilities of existing monitoring programs and databases. We question whether the substantial efforts and expenditures for both data acquisition and modeling procedures/development are warranted, given our doubt regarding the need for some of these additional species/stock harvest management strategies. We also question if there will be the political and financial support for expansion or addition of monitoring and modeling efforts to accommodate new strategies. Finally, we wonder and worry about the credibility of waterfowl managers in implementing and explaining all these new, sophisticated and sometimes mathematically complex models and strategies to administrators and hunters. What messages are we sending to these groups about our ability to control harvest or effect populations? Our ability to model or develop harvest strategies seems somewhat contrary to the message we typically send to administrators and hunters about habitat being the primary driving force behind duck populations.

There are already eight (mid-continent, western and eastern mallards, black duck, northern pintail, scaup, canvasback and wood duck) duck harvest strategies that have been implemented or are near implementation. Referring back to our Recommendation #15, we ask: Are we currently moving towards a separate harvest strategy (adaptive or not) for every stock of waterfowl (and every migratory game bird)? How

many more are we going to develop and implement? Who decides under what criteria and when to develop a new strategy?

The CF recognizes the distinction between the use of an adaptive management approach and the specific harvest strategies we are currently wrestling with. The basic approach of structured decision-making is hard to argue with: managers explicitly state their agreed upon objectives, develop alternative models to describe the system, develop alternative management actions aimed at meeting the objectives, establish appropriate monitoring programs to track system response, and then implement management actions and update their understanding of the system and future actions based on the results. Abandoning this explicit, data-driven approach is probably not a sensible option.

But waterfowl managers collectively seem to be in the midst of re-thinking what our objectives should or need to be; without agreement on the management objectives, the other pieces of adaptive management become irrelevant. We believe discussions about models and regulatory alternatives for the various species and stocks should follow after we agree on what we are trying to accomplish on the larger scale.

Integration of current and new duck harvest strategies has implications to AHM and the Environmental Impact Statement on Migratory Bird Hunting, and possibly NAWMP goals. There is great need for better coordination and more discussion between the Service and the Flyways with respect to any further development of harvest management plans.

In regard to duck hunter management, we note that concerns expressed by the CF regarding AHM at the second AHM Working Group meeting in December 1992 remain unresolved today. These include:

- concerned about declining hunter numbers

- complex regulations may be causing hunters to quit

- a decline in hunter numbers will lead to loss or political support for waterfowl conservation.

- annual haggling and tinkering with regulations are counterproductive and incorrectly send the message to hunters that small changes in regulation can have large impact on duck populations.

- Other factors might influence hunter numbers, but databases severely limit objective analyses.

An apparent outcome from the recent Future of Waterfowl Management Workshop was the need to incorporate human dimensions aspects into waterfowl harvest and habitat management. We need to look carefully at our assumptions (models) about hunters – the current approach makes for a very complicated regulatory process for us managers, but do most' view the regulations as overly complicated? Do we have evidence that more complicated regulations decreases recruitment or retention of hunters? We like the idea of maximizing opportunity for hunters with the federal frameworks, mainly through season length and bag limits, but once you get above a certain level, do marginal gains in opportunity, stop mattering to hunters, or more specifically, to hunter recruitment/retention? Are differing regulations between or within flyways something we can appropriately manage? Can we view this as an effort to balance two populations – hunters and ducks, where we are trying to maximize the population of hunters while maintaining reasonable populations of ducks? All of these discussion should lead to harvest management objectives we have more/better agreement on, and that might lead to new models, regulatory alternatives and monitoring programs, preferably for setting a duck season, rather than a season for each stock of duck. We believe we need to have these debates and discussions before developing or implementing any harvest strategies directed at achieving a percentage of MSY.

The CF has advocated simplified hunting regulations for many years. That is one of the primary reasons CF states are adverse to partial and closed seasons. Partial or closed seasons simply make it more difficult for hunters to comply with regulations. We also believe that complex regulations deter participation, particularly to

those that may consider waterfowl hunting for the first time. Along that same vein, simplified bag limits explicitly recognize the inability of most duck hunters to identify ducks. This is the reason behind out Hunter's Choice Experiment – which is now nearing completion.

Species management has long been a driving factor for duck hunting regulations in the CF. These efforts were prompted by concerns for providing as much duck hunting opportunity as the resource would allow, with the assumption that maximizing harvest would maximize hunter participation. We may have been wrong.

Similarly, when AHM came along, we, like all the others represented here at this table, opted for an objective of maximizing mallard harvest. We all thought that this would be the best strategy for providing maximum duck hunting opportunity and participation. More and more, it appears we may have been wrong.

To that end, the CF is currently discussing the need for a rigorously-designed experiment to measure what the harvest levels of various duck species would be in the absence of any species restrictions and the impact to hunter recruitment/retention. Information of this nature should form the starting point for any analysis of what might be appropriate species or stock specific regulations.

Pacific Flyway (Dan Yparraguirre, CA, and Jon Runge, CO)—

The Pacific Flyway Study Committee and Council continue to place a high priority on the continuation and advancement of AHM and its principles. The Pacific Flyway has a long-standing record of support for the cooperative development of harvest strategies that use objective criteria, and we continue to recognize biological and social differences among and within populations of waterfowl and the flyways. The Council supports flyway specific harvest management that considers flyway differences in traditional harvest levels per the joint flyway recommendations in 1996 and 2000. We support the long-term recognition of differential bag limits and season lengths based on relatively low numbers of hunters and relatively large wintering waterfowl populations in the Pacific Flyway.

A gap exists in analytical expertise between the FWS and the Pacific Flyway. We are concerned that this gap may eventually lead to decreasing support from traditional constituencies because the harvest policies that arise from these sophisticated analyses are difficult to communicate. We would welcome the development of more hands-on training and communication tools for the PF Working Group representatives to bring to our technical committee.

The Flyway supports AHM as a basis for learning about how harvest affects waterfowl populations and urges the development of models that incorporate scientific hypotheses that aid investigations into population dynamics of waterfowl. Furthermore, we have supported independent harvest strategies for scaup, pintail, and three stocks of mallards, but believe that regulations would be unnecessarily complex if structured decision making were to be used for all species of ducks.

Traditionally, the Flyway has sought to maximize hunting opportunity yet favors straightforward harvest regulations, with a strong desire to minimize closed seasons. While we recognize there is much to be learned about hunter retention and recruitment, we have not supported reducing hunting opportunity to create "simple" hunting regulations because declines in hunter participation in the Pacific Flyway began during a period of stable and relatively liberal regulations. We support efforts to better understand the motivations that attract and retain waterfowl hunters.

We note Don Kraege's service to the Flyway as a representative of the AHM Working Group and look forward to Jon Runge's participation.

Western Mallards - The Pacific Flyway has worked toward implementing harvest management based on mallards from the west since its inception, with an increased emphasis the last 20 years. Surveys and banding have been increasingly enhanced beginning in the late 1980s. Following the implementation of AHM in 1995, and the analysis of banding data by Kelly and Smith in 1997, the Flyway formally requested consideration of the development of models of western mallard population dynamics. In 1999, the FWS formally recognized a western mallard stock for harvest management and stated the intent to integrate western mallards into the AHM process by 2001. By 2007, the FWS developed a revised protocol for managing the harvest of mallards in western North America, but the Flyway recommended that it be implemented in 2008. This delay was needed to fully understand and select a management objective, better understand the effect of not explicitly considering mallards derived from those portions of Alberta that contribute mallards to the Pacific Flyway, and to determine how this strategy would relate to Alaska's early season regulations.

We recognize the concern that mallards from Alberta are completely apportioned to the mid-continent mallard stock. Herzog and Sedinger (2004) estimated that 17% of the PF mallard harvest comes from southwestern Alberta, and Munro and Kimball (1982) estimated that 33% of the total harvest of mallards originating in southwestern Alberta (Banding Reference Area 3) occurred in the Pacific Flyway. In our opinion, the best approach would be to explicitly include dynamics of mid-continent mallards in the western mallard harvest strategy through the incorporation of Alberta mallards. Our Council has requested that the Service explore options of incorporating mallards and other waterfowl stocks derived from surveyed areas in Canada important to the Pacific Flyway (e.g., Alberta, NWT) into the decision process in the future.

We believe that much additional work is needed on western mallards. Survey design in British Columbia has recently been completed, and Washington is beginning implementation of a new survey design consistent with SOPs of other Flyway and USFWS surveys. Some other Pacific Flyway states are working to improve or create breeding waterfowl surveys. Additional work is needed on estimating harvest rates relative to regulation packages.

Northern Pintail - Northern pintail continue to be of importance to the Pacific Flyway. In the 2008 Midwinter Survey, the index for pintail remained the highest for all duck species in the Pacific Flyway and comprised about 33% of the total dabbling duck index of about 4.6 million ducks. The midwinter index for pintail in the Pacific Flyway is over twice that of green-winged teal, gadwall or wigeon.

In late November, 2008 some members of the Study Committee and other biologists in the Pacific Flyway participated in a workshop in Portland Oregon on the existing pintail population models, the current strategy, the proposed new strategy, and optimization procedures. The Flyway appreciates the coordination of this effort by the USFWS and the efforts by Mike Runge to lead the workshop.

We continue to review the proposed derived strategy, and are investigating alternative models that may do a better job at capturing alternative hypotheses regarding underlying biological processes. We remain concerned about the effects of low bag limits on the estimates of differential vulnerability and the effect of those estimates on estimated recruitment. The Flyway continues to support the consideration of sex and/or stock specific regulations.

C*anadian Wildlife Service (Dale Caswell)—*

The CWS continues to support and adaptive process to setting hunting regulations and continual improvement in the scientific basis for regulations setting. Dale reviewed some of the reorganization that is occurring in CWS and Environment Canada and potential impacts to traditional waterfowl management programs and emphasis. He summarized the interest in Canada in regulatory simplicity and limited regulatory

change. Dale also provided perspectives on the complicated nature of multiple objective setting and implications of harvest decisions at multiple scales (e.g., regional or province vs. Flyway).

Common Themes in Flyway Perspectives (Mark Koneff)—

Following the Flyway presentations Mark Koneff attempted to summarize common themes among the Flyways. Several of the themes identified included: desire for simplicity of regulations and concerns about the proliferation of species-specific harvest strategies; desire for a less burdensome regulatory process; concerns that present harvest management objectives do not adequately reflect stakeholder concerns or values and that "latent", inexplicit objectives should be identified and considered in management decision making; mixed support and concern for concepts of integration and coherence emerging from the Joint Task Group report and the Future of Waterfowl Management Workshop. The Pacific Flyway offered a somewhat divergent opinion regarding regulatory complexity, preferring regulations that are species and stock-specific and that reflect biological differences among duck stocks and social differences among stakeholders/constituents. Mark then reiterated how he believed that the issues to be discussed over the next several days were pertinent to addressing many of the concerns expressed in a systematic and transparent manner.

Future of Waterfowl Management Workshop Followup (Mark Koneff)—

Mark Koneff reviewed outcomes of the Future of Waterfowl Management Workshop and posed a series of questions to the Working Group about the role the Working Group should play in efforts to address integration/coherence concerns. Mark also updated the group on the NAWMP Update process and informed them that an Update Steering Committee was being formed. A central theme of the Update is expected to be coherence and its anticipated that the Update will be the forum for development of integrated objectives for habitat and harvest management. Mark indicated that the Update Steering Committee would likely be looking for at least one representative from the Working Group to serve on or otherwise liason with the Steering Committee. [see presentation; Future of WF MGT Workshop NEXT STEPS1208.pdf]

Update on the SEIS (Bob Trost)—

Bob Trost updated the group on the status of the SEIS. Bob also provided a thorough outline of the document, but due to the nature of the NEPA process was unable to go into specifics regarding the draft SEIS. Many of the issues that will be addressed in the SEIS relate to concerns expressed by the Flyways. Some concern was expressed by state representatives that the process of developing the SEIS seemed closed to stakeholder participation during the preparatory phase. It was acknowledged that at this stage of the NEPA process, stakeholder participation is not possible. Bob reassured the group that once the SEIS is released for public comment there will be ample opportunity to stakeholder involvement. It is clear to the Working Group that the different timetables for the development of the SEIS, the NAWMP Update, and various duck harvest strategies complicate attempts to strategically address waterfowl harvest and habitat management issues within a coherent framework.

Role and composition of the AHM Working Group (Dan Yparraguirre and Dave Sharp)—

Dave Sharp gave a presentation summarizing the historical roots of AHM and the evolution of both the charge and composition of the AHM Working Group [see presentation; AHM Working Group History.pdf]. Dan

Yparraguirre presented some initial ideas regarding the present role of the Working Group. Based on his experience with other working group charters, Bob Trost was enlisted to help flesh out some of these ideas in draft charter that would more clearly identify the current role and functioning of the AHM Working Group.

Session 2: Coping with Multiple Objectives

Much of the current concern regarding the direction of harvest management might be thought to relate to the issue of multiple competing objectives and inherent tradeoffs amongst objectives. There is growing concern within the waterfowl harvest management community that harvest management objectives as currently expressed do not adequately reflect stakeholder concerns and values. In fact there may be many unstated or incompletely articulated "latent" objectives that are more fundamental in nature than the objectives that have been described for previous AHM applications. Even current dissatisfaction with regulatory alternatives may reflect underlying discontent with the expression of harvest management objectives. The intent of this session was to begin to review conceptual issues related to harvest management objectives and to discuss a set of decision-analysis tools that could be used to more systematically and transparently elicit fundamental objectives from stakeholders and to provide a formal framework within which policy makers can weigh implications and tradeoffs of competing objectives.

Coherence, harvest theory, shoulder points, and harvest management objectives (Mike Runge)—

A review of foundational harvest theory was presented. The nature of harvest management objectives was discussed in the context of the recommendations of the Joint Task Group report and the outcomes of the Future of Waterfowl Management Workshop. The utility of yield curves was described. It was noted that yield curves are merely a depiction of population dynamics, not a depiction of a harvest strategy. Yield curves can assist in understanding how a population responds to harvest or other forms of take but do not, in themselves, represent a harvest strategy, nor are they a "model" or "modeling approach." Yield curves are not new. The properties expressed through yield curves have always been a part of modern waterfowl assessments. These curves are particularly useful in that they make the linkage between harvest and habitat explicit and help illustrate the linkage between habitat capacity and harvest potential. Shoulder strategies were then described including their properties and the consequences of establishing harvest objectives to achieve specific points on the shoulder (right or left) of a given yield curve. The importance of a coherent assessment framework was described. The challenges associated with integrated modeling were also discussed. Likewise the benefits and challenges/tradeoffs of coherent harvest-habitat management objectives were discussed. It was noted that in the past we have done a lot of "tweaking" of our harvest objectives or other elements of the decision-making framework. This is likely because our AHM objective functions do not capture all of the management community's or society's true objectives for duck harvest management. It is critical to recognize that tradeoffs, however, are inherent in balancing multiple objectives (i.e., we can't achieve all objectives fully). What is needed is a framework to understand and balance tradeoffs among competing objectives. [see presentation; Harvest&JTG AHMWG2008.pdf]

Multiple-objective Exercises: Exercise 1 (Mike Runge)—

Throughout the afternoon, a series of exercises were conducted in breakout groups [see description of exercises; AHMWG2008 Mult Obj Exercises.pdf]. The first exercise looked at the tradeoffs in seeking coherence. The exercise was based on a logistic version of the MCM models. The break-out groups were asked to explore how the choice of a shoulder point, the desired carrying capacity, and the North American goal all worked together to achieve coherence. Further, the different effects on continental carrying capacity of pursuing habitat "quality" vs. "quantity" were explored. [see spreadsheet; AHMWG2008 Exercise 1.xls]

Introduction to decision analysis for multi-objective problems (Mike Runge)—

The purpose of this presentation was to describe a basic framework for multiple objective problem analysis and to introduce a few of the formal, quantitative tools available for this type of problem. For many years, we have treated AHM problems as single objective problems and optimized based on that single objective. Since it is becoming increasingly clear that the present AHM objectives may not express or consider all duck harvest management objectives of stakeholders, it is important to introduce a language and framework for multiple objective problems. While a multitude of tools and techniques exist to assist with multi-objective evaluation, a general process consistes of two steps—evaluation of the tradeoffs, and management in the face of those tradeoffs. Evaluation of the tradeoffs can occur through construction of a consequence table, which requires: a clear quantitative statement of all objectives; enumeration of alternative strategies to achieve those objectives; and prediction of how each strategy will fare relative to each objective (modeling). The second step begins with attempts to simplify the problem by identifying and eliminating dominated alternatives, and removing irrelevant objectives. It then proceeds to identify a "best" strategy that balances the tradeoffs among competing objectives, either by reducing the problem to single objective, by using quantitative tradeoff methods (like the SMART technique with swing weighting), or by identification of an efficient frontier and negotiation from there. The potential application of these and other methods to assist policy makers in identifying and evaluating tradeoffs and implications of multiple competing objectives was discussed. [see presentation and associated spreadsheet; MultObjectives AHMWG2008.pdf, SDM Mod 12 Demo.xls]

Multiple objectives for single-species management: elicitation (Mike Runge)—

To illustrate the complex array of management objectives for just a single species, Runge elicited from the group objectives for pintail harvest management. These were then organized into an objectives hierarchy. Around 25 objectives were identified, some of which were compatible, some of which compete with each other. [see MultipleObjectives.pdf]

Multiple-objective Exercises: Exercises 2&3 (Mike Runge)—

The second exercises examined the tradeoffs among objectives in managing for a single species. By manually prescribing a harvest strategy and then simulating it, the break-out groups were able to see how an effort to achieve one objective (e.g., maximize harvest) might lead to lower performance on other objectives (e.g., minimize closed seasons). The third exercise explored how to manage those inherent tradeoffs among objectives by employing multi-criteria decision analysis techniques (namely, the SMART technique with swing weighting). [see description of exercises; AHMWG2008 Mult Obj Exercises.pdf; see spreadsheets; AHMWG2008 Exercise 2.xls, AHMWG2008 Exercise 3.xls]

Session 3: Multiple-stock Management

The complications of multiple objective tradeoffs are only magnified when placed within the context of the management of multiple stocks of waterfowl, each with its own biological capacity to sustain harvest. In this session, the Working Group revisited some basic concepts in multi-stock management and considered tradeoffs between management performance and cost with increasingly refined taxonomic or geographic management scales.

Harvest Management of Multiple Duck Stocks (Fred Johnson)—

Managers face two principal questions, one scientific and the other value-based, in deciding how to manage the harvest of multiple stocks of ducks (species or populations of con-specifics): (a) how does the harvest potential of ducks vary among stocks?; and (b) how should managers promulgate hunting regulations in light of these differences to best address harvest-management goals, objectives, and constraints? Failure to account for sources of variation will result in lower harvest benefits (i.e., less hunting opportunity), and

subjecting multiple stocks to a common set of regulations can lead to unacceptably low population sizes of the less productive stocks, even though the harvests may be sustainable. But the gain in management performance from highly stratified stocks and hunting regulations may often be less than imagined, even where there are relatively large differences among stocks or years in harvest potential. The problem has long been recognized by the management community, and a 2002 white paper (http://www.fws.gov/migratorybirds/reports/ahm02/ScaleAlternatives.pdf) outlined three broad alternatives for managing multiple duck stocks and the implications in terms of various measures of management performance. However, those alternatives were not acted upon, and many in the management community now believe that hunting regulations are becoming overly complex in an attempt to account for ever more sources of variation in harvest potential. This presentation was accompanied by group exercises that demonstrated the various ways in which multiple objectives for multiple duck stocks could be pursued, while emphasizing the tradeoffs inherent in any approach to the problem [see presentation; Harvest Management of Multiple Duck Stocks.pdf].

Session 4: Coping with System Change

Procedures to deal effectively with system change in adaptive decision protocols are not well developed. System change was identified as a central issue because it is at the root of some of the present contentiousness related to harvest management of declining species, and it is also an important challenge to future efforts to integrate the decision-making frameworks for habitat and harvest management. In relation to the harvest management of declining species, system change draws into question basic assumptions associated with adaptive decision frameworks as implemented through AHM, in particular the assumption that some underlying stationarity exists within the managed system around with stochastic events induce population variability. In contrast to underlying stationarity, ongoing system, depending on the rate, could make it very difficult for monitoring programs and assessment frameworks to adapt and could lead to poor estimates of harvest potential. Ideally, assessment frameworks would incorporate mechanistic relationships between population and environmental processes such that the effects of broad scale system change (e.g., climate change and habitat impacts) could be predicted.

In relation to integrated decision-making for harvest and habitat management, habitat conservation actions can be thought of as pre-meditated system change that is occurring against the backdrop of uncontrolled system change. The same mechanistic relationships important from a harvest decision making standpoint are necessary to more fully integrate the decision-making frameworks for harvest and habitat management by linking habitat management decisions to population processes.

Harvest Management Implications of System Change and Uncertainty (Scott Boomer)—

The purpose of this presentation was to provide a broad overview of large scale system change and its possible implications for waterfowl harvest management. I began by briefly discussing some theoretical approaches to describe ecosystem responses to change, and then proceeded to discuss some recent evidence that ecosystem changes are occurring at large spatial scales that overlap many of the breeding habitats that define the waterfowl populations we manage. These examples included changes in wetland conditions across Alaska and parts of the boreal forest, increased frequency and extent of fire in the boreal forest, along with a discussion of the possible impacts of changing climate conditions across the traditional survey area. These

examples were then related back to possible changes in harvest potential and the corresponding implications to harvest management. During the discussion, it was noted that we do not yet have the capability to establish linkages between large scale system changes and a demographic response from the population. Ultimately, these relationships have to be defined in order for our harvest management decisions to be responsive to a system change [see presentation; systemchangeFinal.pdf].

Case Study: Pintail Habitat/Harvest Management Integration (Scott Boomer)—

This presentation provided a broad overview of the Pintail Action Group's effort to develop a modeling framework that considers both habitat and harvest management decision making. We used this case study as an example to demonstrate how model development at regional scales may be required to develop relationships between habitat and harvest management decisions and the demographic response of the population. This issue is similar to the analytical challenges associated with developing modeling frameworks to account for population responses to system change in harvest and habitat decision making.

Session 5: Learning in AHM

In this session, the Working Group revisited the various ways that learning occurs in AHM and discussed what we've learned to date through is implementation in the U.S. Dialogue regarding the future direction of waterfowl harvest management should consider past approaches to decision making as well as the discoveries made throughout the evolution of waterfowl harvest management decision-making protocols.

Learning in AHM (Bill Kendall)—

"Learning" with AHM is not an absolute process, but involves placing relative faith in each candidate model through weights that add to 1.0. The shifting of weights among models, or accumulation of weight on one model, is affected by a number of factors. These include the amount of uncertainty in the predictions under each model, which can be affected by the amount of environmental noise in the population dynamics, or bias or imprecision in model predictions or annual population assessment due to deficiencies in monitoring programs (i.e., insufficient or poorly directed effort). Learning rate is also affected by the emphasis on learning in harvest decisions (passive versus active AHM), and the validity of the model set itself (i.e., are any of the models any good). Part of the AHM process is to remain vigilant about the predictive performance of each model, as well as the model set overall, and make adjustments where and when it makes sense. The same is true for monitoring programs [see presentation; AHMWG08 Learning talk.pdf].

AHM for Mallards; What Have We Learned (Fred Johnson)—

This presentation reviewed the development and revision of alternative models for midcontinent mallards, and provided an accounting of how relative confidence in those models has changed since 1995. Differences in the current passively adaptive strategy and an optimal, actively adaptive strategy were examined. Finally, the presentation explored what has been learned about the relationship between hunting regulations and harvest rates for midcontinent and eastern mallards. By 2007, model weights had largely favored the weakly density-dependent reproductive hypothesis, but little discrimination had occurred between the additive

and compensatory mortality hypotheses. Somewhat disconcerting is the fact that model weights changed substantially only in three years (1999, 2003, and 2007) following poor predictions of population size by all four models, perhaps suggesting that some important environmental driver is absent from the model set. In the current approach to AHM, learning occurs passively, inference is weak, and models may make good predictions for reasons unrelated to the biological hypotheses codified therein. An actively adaptive approach would be expected to provide better model discrimination and management performance, but extreme harvest actions or environmental perturbations would be necessary to move the system beyond the range of recent experience. With respect to the relationship between harvest rates and hunting regulations, harvest rates (based on reward banding) of both midcontinent and eastern mallards under the liberal alternative have been less than expected, even after accounting for the framework-date extensions enacted in 2002 [see presentation; AHM for Mallards.pdf].

Session 6: Information Items, Action Items, Summaries

Short updates were provided on a number of ongoing harvest assessments:

Scaup (Scott Boomer)—

We described some of the issues we faced in developing an alternative model to be used in the scaup decision making framework. The first issue deals with how we define the lower equilibrium level that the scaup population will eventually reach. The primary uncertainty associated with this question is how long the decline will occur and what is the appropriate functional form to use to represent a declining population. Ultimately, these issues will have to be addressed by the waterfowl management community in order to specify the parameters that determine the form of the population decline to a lower equilibrium level. In addition to model development, other policy decisions will have to be addressed that define the compensatory relationship between harvest mortality and scaup survival. In addition, time dependent harvest strategies will have to be evaluated to determine the implications of harvesting a declining population relative to the objectives of scaup harvest management.

Pintails (Scott Boomer)—

Over the past year, a fully derived strategy for pintails was developed and its performance evaluated relative to the current prescribed strategy. The derived strategy made use of the same modeling framework as is applied in the current prescribed strategy. Performance evaluations raised some concerns among the Flyways. Specifically there was concern over the increases frequency of closed seasons projected under the derived strategy. A closed season constraint similar to that in the prescribed strategy was evaluated. Addition of the CS constraint had the effect of increasing the frequency of restrictive SWAS. Deliberations over the derived strategy suggest that perhaps fundamental objectives regarding pintail harvest management remain unexpressed in the proposed objective function. The Pacific Flyway is also presently considering alternative model formulations.

Western Mallards (Todd Sanders)—

The western mallard harvest strategy was adopted and implemented in 2008 as proposed in 2007 and 2008. Adjustments were made accordingly to the mid-continent mallard harvest strategy to accommodate the

western mallard harvest strategy. The Fish and Wildlife Service understands that the Councils have concerns about adjustments to the mid-continent assessment and potential impact of the western mallard harvest strategy on the mid-continent mallard stock, and will continue to work with Councils to address these issues. There are currently efforts underway to bring other Pacific Flyway state breeding duck surveys up to par for possible inclusion in the western mallards assessment including British Columbia, Washington, and Nevada.

Canvasbacks (Emily Silverman)—

At its July 2007 meeting, the USFWS Service Regulation Committee (SRC) requested that the Population and Habitat Assessment Branch (PHAB) of DMBM explore the potential impact of a two-bird bag on the frequency of closed seasons using the canvasback population model. This analysis, which included a modification of the current model to incorporate density dependence, was presented to the AHM working group at the November 2007 meeting and to the SRC at its January 2008 meeting. A report summarizing the analysis was provided to the flyways for their winter meetings. ese analyses noted that the canvasback model was not designed to predict long-term dynamics and that the results of the analysis might be optimistic. Results presented to the AHM working group further suggested that the current model was not successful at predicting large, single year changes in canvasback population estimates. Te 2008 May Breeding Population survey estimated a large drop in the canvasback population; based on this estimate, the harvest strategy mandated a closed season. Analysis of the historical canvasback population estimates, and the 2007 and 2008 Breeding Population survey data, did not find any procedural explanations for the large drop in the estimate: canvasback counts were lower in all crew areas and across all observation categories (pairs, drakes, and groups). Coefficients of variation were in line with historical estimates and the population change, while quite large, was also not without historical precedent. The accuracy of the breeding population estimates for canvasbacks and the utility of the current population model deserve further investigation. PHAB is initiating a review of the May Population survey, which should help address the quality of population estimates. Consideration of the canvasback population model is delayed, while the survey review is ongoing. Any modification to the canvasback strategy should be made in the context of a broader discussion of adaptive management of waterfowl.

Black Ducks (Nathan Zimpfer)—

The Black Duck International Management Group convened in Ottawa, Canada in February 2008 to reach consensus on specific issues surrounding the implementation of an interim harvest strategy. The interim harvest strategy implemented in the US in 2008 is a prescriptive strategy, with the goal of maintaining the black duck population at or above the 1998-2007 population size for the entire eastern survey estimated by the FWS/CWS composite survey. The strategy is framed from a negative presumption perspective, in that it the data must show that the population has not declined to warrant restrictions (i.e. restrictions are implicitly assumed to be necessary unless data show otherwise), or that the population has sufficiently increased to consider liberalizations. A regulatory change is triggered if the 3-year moving average of the population estimate is statistically (α=0.10) different from the population trigger, using a *z*-test. The population trigger was set to be the population estimate which is 15% above or below the 1998-2007 average. The strategy also states that the harvest allocation among countries is expected to be shared equally (50%); however, recognizing incomplete control of harvest through regulations, harvest proportions in either country may vary between 40 and 60%. Parity is assessed from country-specific harvest proportions, using a 5-year moving average of the harvest in each country. Should the average harvest proportion of either country exceed 60%, the Black Duck International Management Group will make the decision as to how to proceed. The interim harvest strategy is expected to be used until a fully adaptive decision framework is AHM models are ready for implementation.

Dr. Conroy presented an update on his work at the Black Duck Joint Venture AHM working group meeting in Moncton New Brunswick two weeks ago. Currently, Mike is evaluating a 1 population 2 harvest area population model for AHM implementation. This model incorporates the composite fixed-wind/helicopter population estimates for black ducks. Since the composite survey represents a limited dataset, just 17 years, mike is using a Bayesian framework to incorporate historical mid-winter survey data and harvest data as informed priors into the model versus a model using just the composite survey data with non-informative priors. Currently results for the model which incorporates historical data are producing nonsensical estimates for the density-dependent coefficient in the productivity model and the estimate of process variance. Model weights for the four hypotheses concerning black ducks (harvest mortality, and mallard competition), have all of the weight entirely on the additive mortality, mallard competition model. Mike is optimistic that he will be able to resolve issues with productivity model coefficients and model weights in the coming months. However, before he is able to explore optimal harvest strategies, the black duck adaptive harvest management working group and ultimately the Black Duck International Management Group needs to spend time developing an objective function for mike to use in ASDP. In developing an objective function the group needs to identify the ultimate objective (eg, maximum cumulative harvest, 95% max cumulative harvest, etc) and consider if they desire a population constraint, a closed season constraint, and the functional form (i.e. shape) of the parity constraint, and whether that constraint should begin discounting harvest when parity deviates from 50:50, or from 60:40 in either country.

Wood Ducks (Pam Garrettson)—

The Atlantic and Mississippi Flyways accepted the use of the Potential Biological Removal (PBR) method for estimating allowable kill rates of wood ducks in Eastern North America. Geographic variation in non-hunting survival rates of juveniles produced differences in allowable kill rates. Researchers have long known that harvest rates on wood ducks banded in northern regions were higher, and annual survival rates were lower than those banded in the south, but this is the first evidence of differences in survival unrelated to hunting. Interestingly, adult non-hunting survival did not differ among geographic region, suggesting that northern juveniles incur costs, perhaps due to migration, that adults do not.

Allowable kill rates for adult male wood ducks were 15.7% for northern birds, 23.5% for southern birds, and 18% in the aggregate. Predicted kill rates under a three-bird bag and current season lengths should fall below these limits (Balkcom et al. in prep), but the variance on the predicted rates is high, and experience with bags higher than 2 birds is limited. The USFWS favored the use of the allowable kill rate for adult male wood ducks in the aggregate for making regulations decisions, as did the Mississippi Flyway. The Atlantic flyway favored the use of northern adult males. Stakeholders also differed on the test criteria to be used, in particular whether an upper 95% confidence interval on the realized kill should be required to fall beneath the allowable kill rate.

Analyses suggested that wood duck populations would be under no risk, and additional information about the relationship between wood duck harvest regulations and realized kill rates would be gained, if a 3-bird wood duck bag were adopted for a 3-year test period. The Service Regulations Committee approved this change, and all states in the Atlantic, Mississippi, and Central Flyways, with the exception of Minnesota, took the 3-bird wood duck bag. The Central Flyway was included in this change for the sake of tradition and simplicity, because 50% of the birds banded in that flyway are recovered in the Mississippi Flyway, and because there is

considerable gene flow among wood ducks east of the Rocky Mountains. The wood duck bag in the Pacific Flyway remains equal to the total duck bag.

In addition to the manuscript on predicted kill rates under various season lengths and bag limits spearheaded by Greg Balkcom of Georgia DNR, papers on harvest and survival (annual and non-hunting) rates, composite reporting rates, and the use of the PBR method in wood ducks should be forthcoming. DMBM and the flyway tech sections will evaluate realized wood duck kill rates under the new regulations as soon as they are available.

Mottled Ducks (Pam Garrettson)—

Last April Louisiana and Texas conducted a range-wide survey for mottled ducks, based on their midwinter survey coastal transects. Aerial surveys were visibility-corrected using a helicopter beat-out method used for breeding ground surveys in eastern Canada. In Louisiana, visibility correction factors were much lower than expected, about 1.5, compared to expected vcfs between 5 to 7, based on other studies and methods. In Texas, the vcf was similar, but low counts overall were cause for greater concern. On Dec. 1, 2008, personnel from TX, LA, USFWS DMBM and R2 met to discuss the survey methodology, plans for improvements, and whether to continue this survey method at all.

Participants concluded that the problem in LA may be due to the difficulty of seeing and flushing birds with the helicopter. In TX, the major problem with the survey may be that areas suitable for mottled ducks in winter often do not hold them in spring, especially if landowners remove water-control structures, and areas that are flooded in winter dry out in the spring. The group wanted to continue the survey for a second year, but with the following changes. In TX these include defining core mottled duck habitat to be surveyed with fixed wing aircraft and helicopters, using available land cover databases. Peripheral areas will be surveyed with fixed wing aircraft only. TX will work with R2 refuges to use marsh buggies to test the effectiveness of the helicopter beat out technique. LA will not change its survey area or transects, except to eliminate areas of open water, but will use airboats where feasible for comparison with the helicopter beat-out technique to evaluate its suitability for surveying breeding mottled ducks. Louisiana will also "tighten up" its helicopter coverage to more thoroughly continuous marsh areas with heavy vegetation. DMBM will provide track files of last year's survey to assist them in making changes.

Reward banding of mottled ducks was done in 2007 and 2008. Preliminary results (from band and recovery data pulled in March 2008) suggest that mottled duck reporting rates may be lower than those in other areas of the US. However, estimates are imprecise, and another year of data should improve those estimates. Pam Garrettson of DMBM will provide updated reporting and harvest rates based on these data prior to the winter 2009 flyway meetings. She is also exploring the possibility of using within season recapture data to provide additional information about mottled duck population dynamics.

AP Canada Geese (Mike Runge)—

Nothing new to report in 2008.

American Woodcock (Guthrie Zimmerman)—

In December of 2007, we produced and circulated a woodcock scoping document with two purposes: (1) summarize available data sets for use in developing a harvest strategy, and (2) provide a potential model for use

in the strategy to generate discussion of potential models and overall structure of the harvest strategy. We held a conference call to discuss the scoping document with the flyways in late January. During this call, we decided to form a woodcock working group to help myself and Tom Cooper work through the technical aspects of the strategy. This working group would consist of representatives from the states and USGS from the Atlantic, Mississippi, and Central flyways. The Atlantic and Mississippi flyways each appointed two state biologists and one USGS biologist to the working group during the winter flyway meetings. The central flyway appointed one state biologist to the working group. The woodcock working group held our first conference call in July. The group overwhelmingly showed interest in developing a derived strategy for woodcock. However, we were concerned about the sporadic (spatially and temporally) nature and sample sizes of some data sets and the types of models that we could parameterize. In addition, developing a set of models to include in the harvest strategy would take some time. Therefore, we decided to work on a short-term prescribed strategy to have in place while we develop the long-term derived strategy. The Atlantic flyway members of the woodcock working group presented a potential prescribed strategy at the summer flyway meetings and asked me to conduct an assessment of the SGS models to make specific decisions concerning their proposed strategy. In addition, I was asked to conduct a harvest assessment looking at the potential impact of adding days to the woodcock season. I just finished the SGS assessment and worked with Ken Richkus and Bob Raftovich on completing the harvest assessment. I summarized the results of these assessments and intend to circulate the results over the next couple of weeks.

Mourning Doves (Todd Sanders)—

Interim harvest strategies for mourning doves were adopted in 2008 with implementation beginning in 2009. Interest remains in developing more informed harvest strategies than the current prescriptive interim strategies. The Mourning Dove Task Force initiated dialogue about objectives and management options and Council technical committee representatives on the Task Force will facilitate similar discussion among Council technical committees during the 2009 regulation cycle meetings.

Revisiting the Role of the AHM WG—

The group brainstormed perceived roles of the AWM Working Group and used TurningPoint tools to attempt to evaluate the relative importance of potential roles identified. The following potential roles were identified:

1. Review body 2.18
2. Information-sharing forum 1.89
3. Training 2.40 (WG members)
    a. 3.04 (the larger wf mgt community)
4. Communications 2.26
5. Strategic planning 2.34
6. Generate novel ideas/approaches 2.14
7. Conduct technical assessments 1.82
8. Obtain funding 3.02
9. Coordinate with NSST 2.96
10. Generate recommendations 2.14
11. Coordinate with HDWG 2.71

12. Elicitors of objectives from higher ups 2.73
13. It is a technical role 2.05

Koneff expressed concern that roles related to coordination with the NSST and as elicitors of objectives from policy makers were not prioritized highly by the Working Group members. Several FWS Flyway representatives and state representatives voiced concern that the Working Group not become engaged in strategic planning as this may usurp the roles of the Councils and the SRC.

The Working Group also reviewed a draft Terms of Reference document prepared by Bob Trost and Dave Sharp. Unresolved issues related to the TOR include the affiliation of the Working Group (SRC, Councils, AFWA, etc.), the taxonomic scope of the Working Group's charge, and its membership. Some concern was expressed that more structure is not needed, but that we need to think more strategically. We not longer have the clear mandate and role that we once had. It was also noted that the SRC, Councils, and NAWMP Committee are anticipating that the Working Group will play a prominent role in moving forward with coherence. This makes it all the more important to collectively resolve questions about our current role in a timely fashion.

Discussions regarding the role of the Working Group also led to ideas being exchanged about the most appropriate current scope of the Working Group including the taxonomic scope (i.e., is the Working Group the appropriate venue for work on non-waterfowl migratory game birds?) and the tactical scope (i.e., is the Working Group the appropriate venue for deliberations on all harvest strategies or just formal adaptive strategies?).

ACTION: Working Group members should send comments on draft TOR to Dave Sharp, Dan Yparraguirre, and Bob Trost. The intent would be to have a draft TOR ready prior to the winter SRC meeting.

Revisiting the AHM WG Role in Advancing Coherence—

The Working Group reconsidered if it was necessary to take some action now prior to receiving a request from the Update Steering Committee to participate in revising habitat and harvest management objectives using the forum provided by the NAWMP Update.

ACTION: The Working Group decided to wait to see what level of participation was requested by the Update Steering Committee. There remains considerable disagreement within the Working Group as to the need for or desirability of attempting to achieve greater coherence between harvest and habitat management.

Addressing the Perceived Technical Gap Between the FWS/USGS and Flyway Technical Committees –

The Group explored options for addressing this gap including FWS/USGS hosting annual or even semi-annual technical training workshops. State representatives expressed some interest in this offer, most felt that training sessions would have to be stand alone workshops and not in conjunction with other meetings. Some felt that the best approach would be to hand pick certain representatives from each flyway to attend, focusing on individual that already possessed significant technical capability.

ACTION: Flyway representatives will put this question to the Flyway Technical Committees

Next Meeting:

The next meeting will be held somewhere in the Pacific Flyway. The meeting will again be the week after Thanksgiving.

ACTION: Bob Trost, Dan Yparraguirre, and Jon Runge will forward options for meeting locations to Mark Koneff.

Meeting Evaluation:

A meeting evaluation was based on participant responses to TurningPoint questions and can be downloaded from the DJ Case and Associates website. All meeting presentations can also be downloaded from this website as well: http://djcase.com/_AHM/ahmwg_mtg_2008.html

ATTACHMENT:

Adaptive Harvest Management Working Group
December 2 -4, 2008
Buda, Texas
FINAL AGENDA

Tuesday, December 2nd

Session 1: Setting the stage

- 8:00-8:15 Welcome, Introductions, Logistics [Case, Koneff, Morrison]
- 8:15-9:15 Flyway Reports/Perspectives [State representatives to WG]
- 9:15-9:30 Common themes in Flyway Reports [All]
- 9:30-10:00 Discussion: Future of Waterfowl Management Workshop follow-up [Koneff, Case]
- 10:00-10:15 Break
- 10:15-10:30 Update on the SEIS [Trost]
- 10:30-11:00 Role and composition of the AHM Working Group [Yparraguirre, Sharp]

Session 2: Coping with Multiple Objectives

- 11:00-12:00 Coherence, harvest theory, shoulder points and harvest mgt objectives [Runge]
- 12:00-13:00 LUNCH
- 13:00-13:30 Interactive exercise examining tradeoffs among competing objectives [All]
- 13:30-14:30 Introduction to decision analysis for multi-objective problems [Runge]
- 14:30-15:00 Elicit and organize objectives for a single-species problem [All]
- 15:00-15:15 BREAK
- 15:15-16:15 Break-out groups; Examining tradeoffs in multi-objective harvest management and group discussion of exercises
- 16:15-17:30 Break-out groups; Given a single-species consequence table, find a solution and group discussion of exercises

EVENING: Group Dinner at the Salt Lick

December 3rd

Session 3: Multiple-stock management

- 8:00-9:00 Elicit and organize objectives for multi-stock problem, as a follow up to previous day [Johnson]
- 9:00-9:30 Introduction to exercise: What are the concepts and considerations of multi-stock management? How do we begin to frame results from the objective elicitation within an AM framework? [Johnson]
- 9:30-9:45 BREAK
- 9:45-12:00 Break-out groups; understanding the basics of multi-stock harvest management; managing the for the aggregate vs. separate stocks; single objective vs. multiple objectives; group discussion of exercises
- 12:00-13:00 LUNCH

Session 4: Coping with system change

- 13:00-14:00 Harvest management implications of system change and uncertainty [Boomer]

- 14:00-15:00 Case Study: Pintail habitat/harvest management integration [Boomer]
- 15:00-15:15 BREAK
- 15:15-17:30 Break-out groups; evaluating harvest potential as a function of our ability to model system change; group discussion of exercises

EVENING: Shrimpboil at Dave Morrison's house

December 4th

Session 5: Learning in AHM

- 8:00-9:00 How does learning occur? What affects the rate of learning? What are some monitoring considerations? What about double-loop learning? [Kendall]
- 9:00-10:00 Interactive group exercise; comparing observed outcomes with alternative predictions; calculating likelihoods and model weights via Bayes Theorem [All]
- 10:00-10:15 BREAK
- 10:15-11:15 What have we learned through the AHM process to date?; Passive vs. active AHM for midcontinent mallards; expected value of perfect information; do differences in approaches matter? [Johnson]
- 11:15-12:00 Model structure vs. parameter uncertainty; nature of updating; mixed model sets (i.e., those having both sources of uncertainty) [Boomer]
- 12:00-13:00 LUNCH

Session 6: Information items, action items, summaries

- 13:00-14:00 Assessment Updates (approx. 5-10 minutes each)
  - Scaup [Boomer]
  - Pintails [Boomer/Runge]
  - Mallards, all stocks [Sanders]
  - Black Ducks [Zimpfer]
  - Wood Ducks [Garrettson]
  - Mottled Ducks [Garrettson]
  - AP Canada Geese [Runge/Boomer]
  - Webless [Zimmerman, Sanders]
  - Canvasbacks [Silverman]
- 14:00-15:00 Meeting Summary and Action Items [Koneff]
- 15:00-16:00 Parting Thoughts [All]
- 16:00-16:30 Next meeting: Location, Dates, Topics